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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/453,526 | 12/03/1999 | HARRY B. SMITH | A7302 | 2759 |

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ROBERT M MASTERS
SUGHRUE MION ZINN MACPEAK AND SEAS PLLC
2100 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 200373212

| EXAMINER | |
|---|---|
| GESESSE, TILAHUN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2684 | 8 |

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/453,526 | SMITH, HARRY B. | |
| | Examiner | Art Unit | |
| | Tilahun B Gesesse | 2684 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-82* is/are pending in the application.

4a) Of the above claim(s) *1-11,20-22,30-33,53,54,57-60,63 and 65-68* is/are withdrawn from consideration.

5)☐ Claim(s) *12-19,23,38,41-52,55,56,61,62,69-74 and 80* is/are allowed.

6)☒ Claim(s) *24,34,39,40,64,75-79,81 and 82* is/are rejected.

7)☐ Claim(s) *25-29 and 35-37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This is in response to applicant's amendment and response filed February 20, 2004, in which claims 12-19,23-29,34-52,55-56,61-62,64,69-82 are pending.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 24,39-40 rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar et al "Molnar" (6,081,566) in view of Kobayakawa et al "Kobayakawa" (6,058,318).

As to claims 24,39-40 Molnar discloses a method of improving an angular resolution in a receive system (figure 1, method comprising the steps of: aggregating signal-plus-noise data output from an antenna into a plurality of antenna element (column 3, lines 35-45, column 12, lines 44-54 and figures 1 and 2). Molnar does not

teach group containing data having a similar phase, wherein the phase corresponding to each group is a multiple of the phase corresponding to the other groups, said multiple being determined by a spacing between the right and left elements of each group from the center of the antenna array.

However, Kobayakawa teach group of antenna elements containing data having a similar phase, wherein the phase corresponding to each group is a multiple of the phase corresponding to the other groups, said multiple being determined by a spacing between the right and left elements of each group from the center of the antenna array (abstract and figure 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Molnar and Kobayakawa in the antenna elements are grouped into of elements having similar phase ,as taught by Kobayakawa, in order to compensate the phase differences, as a result eliminate interference.

4. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar in view of Shapira et al "Shapira" (6,640,110).

As to claim 34, Molar discloses a receive system comprising; an antenna array with right and left side elements operable to receive signal-plus-nose signals (column 7, lines 10-16), a means for aggregating outputs of selected right and left side elements of said antenna array to form an aggregation of signal-plus-noise voltages in digital form, the digital values being (column 12, lines 44-54 and figures 1 and 2). Molnar does not teach a topological number array (TNA) in several steps to form a near real time estimate of the noise for each trial. However, Shapira discloses a topological number

array (TNA) in several steps to form a near real time estimate of the noise for each trial (column 17, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Molnar and Shapira in deploying topological number array antennas in different region , as taught by Shapira, in order to retrieve received signals with less interference.

As to claim 64, Molar discloses a receptivity to radio frequency signals provides a signal strength, relative to inherent noise, characteristic that is equivalent to that which is expected from an antenna with a larger aperture, and wherein said signals have improved directivity and angular resolution over a wide range of radio frequencies permitting better utilization of an allocated or an independently chosen frequency spectrum (figure 1).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 75- 79 and 81-82 are rejected under 35 U.S.C. 102(e) as being anticipated by Molnar et al (6,081,566).

At to claims 75-79, Molnar discloses a versatile stand alone antenna and receiving system(105) (figure 1) comprising: means for providing related to a carrier signal amplitude, wherein processing takes place, the means for providing employs surrogate. carrier signals of known values that are substituted for actual signals and which are compared to each of several predetermined values to select one that gives the closest match ( column 3 lines 23-55) as determined by an enhanced signal-to-noise ratio that results when alternate to determine a signal estimated result because these half cycles are inherently the same amplitudes (column 2, line 49- column 3, line 22).

As to claim 81, Molnar discloses a processing method whereby two or more successive samples are utilized to provide confirmation that an endomorphic process has been achieved such that a combination of trials together provide a frame of information concerning a signal carrier at a rate such that a series of frames will accommodate a changing nature or modulation of the carrier (column 2, lines 60- column 3, line 3)

As to claim 82, Molnar inherently discloses an iterative process operable to Extract phase modulation from a carrier signal, wherein the modulation is in the form of a sinusoidal or square wave pattern between two phase excursions accomplished by

using a pair of carrier instances that are at the same phase with each other for a plurality of such pairs which are used successively to reproduce the modulation from a series of frames of enhanced information .

***Allowable Subject Matter***

7. Claims 25-29,35- 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12-19 and 38, 41-52,55-56,61-62,69-74 and 80 allowed. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose the producing a sequence of controlled steps to create a series of discrete voltage values using an iterative program in which each value alters the signal plus noise value to create a new signal plus noise value for each entry of both left and right portions of the topographical numerical array; sensing how each iterative step alters the entries of selected rows of the topographical digital numerical array; and determining when a numerical match of values occurs between various columns of said U, , array; reading a column entry from the average row and the column in another row, different from said average row, that has been shifted by an amount equal to the algebraic sum of the minimum deviation value together with a left or right shift furnished as part of an instruction from said iterative program.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jasper et al (6,251,955) discloses an antenna array portion of communication device receives a desired signal and an interfering signal and combine various signals from the second antenna (abstract).

Barratt et al (6,185,440) discloses apparatus for transmitting a downlink signal from a communication station to one or more subscriber units to achieve a desired ration level over a desired sector (abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B Gesesse whose telephone number is 703-308-5873. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TBG

April 30, 2004

Art unit 2684

TEMESGEN GESESSE
PATENT EXAMINER